

Openbaar gemaakt  
den 21. OCT. 1920

# PATENT SPECIFICATION



Application Date: July 8, 1919. No. 17,078/19.  
Complete Accepted: Sept. 30, 1920.

151,396

## COMPLETE SPECIFICATION.

Improvements in and relating to Coating Compositions for the Parts of Aircraft.

I, PARKER RICHARDSON BRADLEY, of 28, Chelsea Place, East Orange, Essex County, State of New Jersey, United States, do hereby

alginic acid may be ground into a fine powder and then mixed with the alginic acid or the alginates. Preferably a layer of cellulose acetate

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10 This proofing flying varnish resisti-  
15 coating ducts. Wa-  
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render

## ERRATUM.

SPECIFICATION No. 151,396.

Page 1, line 25, for "fires" read "fibres"

PATENT OFFICE,  
December 31st, 1920.

25 In the production of leather like substances it has been proposed to incorporate with tangles vegetable fibres and particularly the fibres of seaweed, the product being ground and formed into plates and finally treated with acids and glycerine or sugar.

30 The general object of the present invention is to provide a fireproof coating for aircraft parts which is comparatively inexpensive, capable of being easily applied, and which has exceedingly high fire-resisting qualities.

35 In carrying out the invention algin cellulose or the fiber-like product obtained as a by-product in the extraction of

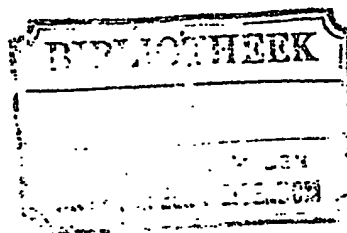
Instead of using one or more coatings of cellulose acetate dope, good results can be obtained by using one or more coatings of cellulose nitrate dope and thereafter the alginic acid coatings are applied as described. The coatings of cellulose acetate or cellulose nitrate may be omitted and the coatings of alginic acid products or alginates may be applied directly to the cloth surfaces of the aircraft, and the desired drum-like effects may be increased or diminished by adding shellac or similar gum to the alginic acid products or the alginates, thereby effecting an enormous saving in the cost. Or another method con-

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### COMPLETE SPECIFICATION.

#### Improvements in and relating to Coating Compositions for the Parts of Aircraft.

I, PARKER RICHARDSON BRADLEY, of 28, Chelsea Place, East Orange, Essex County, State of New Jersey, United States of America, Chemist, do hereby  
5 declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

10 This invention relates to the fireproofing of the cloth and wooden parts of flying machines by the application of a varnish-like liquid which imparts a fire-resisting surface thereto, the fire proofing  
15 coating being made of alginic acid products or an alginate as a basis.

Waterproofing compositions have been previously proposed containing alginic acid products and such substances have  
20 been found particularly useful in treating flexible materials such as fabrics to render them water proof.

In the production of leather like substances it has been proposed to incorporate with tannates vegetable fires and particularly the fibres of seaweed, the product being ground and formed into plates and finally treated with acids and  
25 glycerine or sugar.

30 The general object of the present invention is to provide a fireproof coating for aircraft parts which is comparatively inexpensive, capable of being easily applied, and which has exceedingly high  
35 fire-resisting qualities.

In carrying out the invention alginic cellulose or the fiber-like product obtained as a by-product in the extraction of

alginic acid may be ground into a fine powder and then mixed with the alginic acid or the alginates.

Preferably a layer of cellulose acetate dope in one or more coatings is applied to the cloth or wood surface of the aircraft, and when dry a layer of one or  
45 more coatings of alginic acid or its alginates is applied, using preferably those which dry to a film insoluble in water. If desired, however, these layers may be reversed so that the cellulose acetate dope  
50 will be on the outside and the coating of the alginic acid products or alginates will be directly on the cloth or wood surface. These alginic acid products may have their fire-resisting qualities in-  
55 creased by adding to them when in a liquid state a suitable substance, such as boric acid or the salts generally used for fireproofing purposes, such as ammonium phosphate, sodium tungstate and the like.

60 Instead of using one or more first coatings of cellulose acetate dope, good results can be obtained by using one or more coatings of cellulose nitrate dope and thereafter the alginic acid coatings are  
65 applied as described. The coatings of cellulose acetate or cellulose nitrate may be omitted and the coatings of alginic acid products or alginates may be applied directly to the cloth surfaces of the aircraft, and the desired drum-like effects  
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sists in applying successive layers of cellulose nitrate dope and cellulose acetate dope, the layers being applied in coatings successively after each dries, and then finally one or more layers of the fireproofing alginic acid products or the alginates may be applied.

In the drawings, Figures 1 to 5 inclusive are fragmentary views showing the different methods of coating the part of an airship to be protected.

In the figures 1 is supposed to represent a part of an airship that is to be fireproofed.

15 In Figure 1 only a single layer 2 of several coatings is represented, which is a varnish-like liquid that hardens in a film form and it is made from an alginic acid product or an alginate.

20 In Figure 2 a double layer of protective material each of one or more coats is shown. The under layer 3 is cellulose acetate and the outer layer is the same as the coating in Figure 1. If desired the arrangements of the coatings 2 and 3 may be reversed, as shown in Figure 4.

In Figure 3 between the part 1 and the outer layer 2 is a layer of cellulose nitrate 4.

30 In Figure 4 the arrangement of the coatings 2 and 3, as shown in Figure 2, is reversed.

In Figure 5 the layers 5 and 6 are respectively coatings of cellulose nitrate and cellulose acetate and the outer layer

7 is composed of coatings of alginic acid products of alginates.

The foregoing are some of the various methods of protecting the surfaces of the inflammable parts of an aircraft, but other combinations of layers may be employed, but an essential feature is the use of a fireproofing material embodying alginic acid.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A method of rendering aircraft parts fire proof, which comprises coating them with alginic acid or products thereof.

2. A method of rendering aircraft parts fire proof, which comprises coating them with alginic acid or products thereof, to which is added fire resisting substances such as boric acid, ammonium phosphate, or sodium tungstate and the like whereby the fire resisting properties of alginic acid or its products are augmented.

3. A method of rendering aircraft parts fire proof as claimed in the preceding claims in which they are previously or subsequently coated with cellulose protective material.

4. The method of rendering aircraft parts fire proof substantially as hereinbefore described.

Dated this 8th day of July, 1919.

MARKS & CLERK.

Fig.1

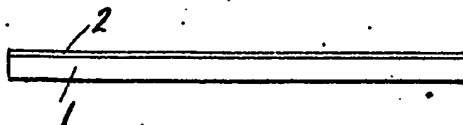


Fig.2.

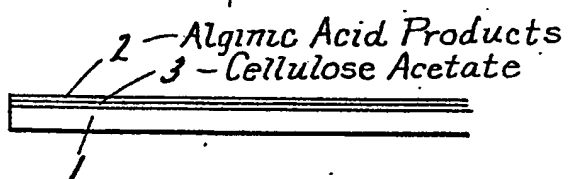


Fig.3.

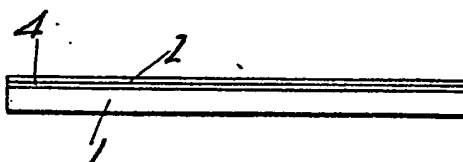
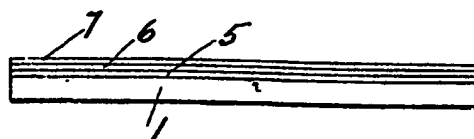


Fig.4.



Fig.5.



[This Drawing is a reproduction of the Original on a reduced scale.]

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